REMARKS

Claims 1 – 51 are pending in the application. Claims 1-34 stand rejected under 35 U.S.C. § 112, first paragraph. Claims 35-51 stand rejected as obvious under 35 U.S.C. § 103 over U.S. Patent No. 5,263,019 issued to Chu in view of an article written by Ngia and various other references. Applicant has canceled Claim 46, amended Claims 35, 47, 50-51 and added new Claim 52. Applicant respectfully requests reconsideration and full allowance of all pending claims.

1. Rejections Under Section 112, First Paragraph.

Applicant respectfully submits that both Claim 1 and Claim 22 are fully supported by the written description of Figure 2 starting on page 9. The first audio signal input to AEC module 210 is the signal 230 which proceeds to the speaker 118. The second audio signal input to AEC module 210 is the signal from the microphone converter 214. The second signal includes an echo of the first signal due to the pickup by the microphone of the loudspeaker output, and the echo has non-linear distortions generated by the output of the loudspeaker. The audio generation module 232 models the distortion to produce the distorted signal that is sent to the adder to remove at least part of the echo. Applicant respectfully requests the Examiner withdraw the rejection under Section 112, first paragraph.

2. Rejections Under Section 103.

Claim 35 stands rejected as obvious over Chu in view of Ngia. Applicant has amended Claim 35 to incorporate the subject matter of Claim 46. Claim 46, now cancelled, stood rejected in further view of U.S. Patent Application No. 4,709,391 issued to Kaizer.

Chu discloses an echo canceling device having an adjustable filter for receiving a loud speaker signal and generating an echo estimation signal based on the relative strength of the loudspeaker signal compared with the microphone signal. An electronic search of Chu indicates no reference to the terms "distort" or "distortion."

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Ngia discloses a Hammerstein echo canceller that models loudspeaker and acoustic channel non-linearity in different frequency and amplitude regions with a separate model for each region.

Kaizer discloses a non-linear network coupled to a microphone or loudspeaker transducer to reduce non-linear distortion by compensating for at least one second or higher-order distortion component in the output of the component.
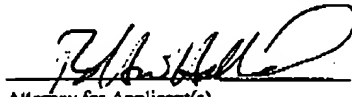
Claim 35 as amended recites, in part, "an audio sensing module receiving the first signal and adapted to use the distortion module to model a distortion that occurs responsive to sensing the audio signal."

Applicant respectfully submits that Chu, Ngia and Kaizer cannot make obvious Claim 35 because these references fail to teach, disclose or suggest any modeling of distortion sensed by a microphone based on a loudspeaker signal. Kaizer analyzes the signal generated by the microphone, not the loudspeaker signal which produces sounds at a loudspeaker that are sensed by a microphone. Accordingly, Applicant respectfully submits that Claim 35 is allowable, as are Claims 36-45 and 47-51, which depend from Claim 35.

Applicant respectfully submits that new Claim 52 is allowable because none of the references cited by the Examiner teach disclose or suggest "a distortion module interfaced with the first signal and operable to generate a distorted signal modeled to the distortion introduced by the microphone in the sensing of the loudspeaker sound pressure waves." Accordingly, Applicant respectfully request the Examiner issue a notice of allowance for New Claim 52.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

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I hereby certify that this correspondence is being sent via facsimile to the USPTO on June 1, 2004.

_____   15 June 2004
Attorney for Applicant(s)   Date of Signature

Respectfully submitted,

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